

“What are Angstrom Minerals and how do they differ from all the other mineral supplements on the market?”

What we are talking about is “very small” but to really understand the significance of atomic mineral supplements takes a basic understanding of biology and chemistry. I will give you an example of how atomic minerals work in the digestive tract. Hydrochloric Acid in the stomach is made up of primarily zinc by the body. After the food has been digested in the stomach it turns into a liquid substance called Chyme, it is passed through the duodenum, small intestine, where the Chyme is allowed to further digest before passing further into the digestive tract. To neutralize the Hydrochloric Acid the gallbladder, which is the storage unit for the liver and which contains sodium, calls to the body for two atoms of carbon to join with its own sodium to create sodium bi-carbonate which is used to neutralize the acid so that the Chyme can be further digested by the friendly bacteria in the intestine. The food is broken down into its constituent parts of atomic minerals, molecules of vitamins, amino acids, enzymes and other nutrients needed by the body.

Dr. Henry Schroeder, M.D., Ph.D. Of Dartmouth College said, “your mineral needs are even more important than your vitamin needs, since your body cannot make minerals.”

Angstrom is the smallest measurable wavelength of light and used to describe the length of molecules and crystals. The term “Angstrom” is used as a measurement to illustrate how small the particles are in the mono-atomic form. Colloids and complex minerals are all in particle size of approximately a micron. If you were to take a strand of human hair and cut it across the circumference and line up microns across the distance at the widest point it would hold 50 microns. By comparison an angstrom is 10,000 times smaller than a micron. The nature of minerals in their most elemental state is that of atoms. Only in this state can they carry an electrical charge, either positive or negative. The body can only take up these elements if they carry an electrical charge. When minerals do not have an electrical charge they are locked-up and unusable. Minerals in complex and colloidal forms are not **“cell ready”** as they are not able to be carried through the cell. Why? Because the cell is much too small to allow the micron sized particle to enter. Cells in the body are approximately 15 angstroms in size. It would be like attempting to fit a basketball inside of a BB. It doesn’t matter that amino acids are added to the large particles (chelated) or that they have been ionized (charged), the cell is still too small to accept it.

In fact, because of their size complex minerals and colloid supplements are more than likely causing more harm than good. By complex minerals I mean those like Calcium Carbonate, one calcium atom and three carbon atoms. They are bound tightly together and because of this tight bond are practically useless to the body. Molecular bonds the body recognizes and can break apart are the loose bonds found in plants, that is, providing that the body working to break these loose bonds has a functional digestive tract. Most Americans do not.

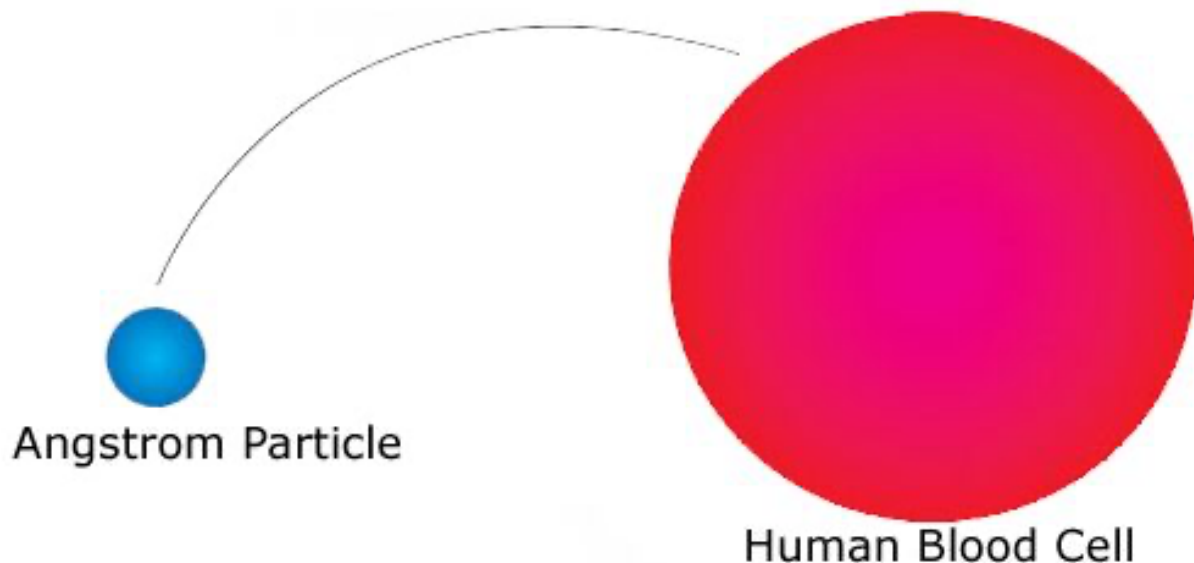
Elements that are a **“must”** for all cells and tissues are Hydrogen and Oxygen and these two elements are essential to carry nutrients into each cell. Hydrogen and Oxygen when molecularly bound are known as water. Water molecules contain one oxygen atom and two hydrogen atoms and are 0.965 angstroms in size. The water molecule attracts through its charges various minerals yet one water molecule can carry only one nutrient at a time. Our bodies need minerals in their atomic form so that it may create the various substances it needs to properly function. In a real sense our bodies are a living chemistry lab.

Dr. Linus Pauling said, "lacking minerals, vitamins are useless".

Vitamins, Hormones, Amino Acids, and Enzymes are all made up of and activated by minerals. Break down an amino acid to its atomic structure and you find minerals, for example some amino acids are sulfur based. Enzymes, such as super oxidase dismutase (SOD) is supported by zinc, iron, copper, and manganese. Vitamins are the supervisor of the construction crew. Amino Acids and Enzymes are the workers wearing the hard hats. Minerals are the materials used for all construction. Calcium, Magnesium, Manganese and Phosphorus make up the foundation of our skeletal structure. Your heart is a pump with Potassium fuel sitting in an electrically reactive solution with sodium which provides the charge for your heart to beat.

As you can see minerals are essential to health and need to be supplied to the body in the proper form. With the depleted soils that cause depleted plant and animal food sources we are not getting the nutrients we need from our food. Anti-nutrients like preservatives, additives, toxins, soda pop, processed foods, pesticides, herbicides and the like are tying up and/or stripping our body of nutrients which further necessitates the supplementation of minerals. Supplementation of minerals to replace what is missing or being stripped out of the body has become essential for our health.

Elemental Research, Inc.



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Brief List of Mineral Functions within the Body

- **Boron** - Bone health, memory and brain function, regulates hormones.
- **Calcium** - Used in almost every bodily function. Important for pH balance, tone, power, strength, longevity, vitality and endurance.
- **Chromium** - Liver synthesis, regulates metabolism, maintain healthy insulin and blood sugar levels.
- **Cobalt** - Maintain/repair myelin sheath, transport glucose from the blood into body cells, and manufacture/absorb B-Complex vitamins.
- **Copper** - Iron assimilation, formation of hemoglobin & red blood cells, enzyme reactions, protein metabolism, vitamin C oxidation, beneficial for graying and thinning hair.
- **Germanium** - Aid oxygen uptake, natural cleansing of toxins and pollutants, support healthy immune system.
- **Gold** - Sleep aid, feeling of well-being (relaxation), supports immune system, vitality and longevity, glandular functions, raise energy level, joint comfort and movement.
- **Indium** - Support hormonal systems, immune system, hormone stasis, enhance food and mineral absorption, aids utilization of essential trace elements, increased energy, enhanced sense of well-being, reduced need for sleep.
- **Iodine** - Thyroid regulation, hormone regulation that controls digestion, heart rate, body temperature, nervous system, reproductive system, body weight, and metabolism. Natural antibiotic.
- **Iron** - Energy giver, attracts oxygen, builds blood. Involved in food metabolism, digestion, elimination, circulation, and normal-ranged blood pressure.
- **Magnesium** - Aids in relaxing nerves, relieving daily tension. Assists digestion, activates enzymes important for protein and carbohydrate metabolism. Magnesium is important in muscle contraction and relaxation, the production and transfer of energy, assists nerve conduction. Aids regularity, restful sleep, keeps vertebrae in proper position, and purifies/purges body tissues of impurities.
- **Manganese** - Important for all mental faculties/functions. Aids memory, promotes natural resistance and restorative functions. Strengthens tendons, tissues, ligaments, and linings in and outside of organs.
- **Mineral of Life** - Aids and promotes natural functions, supports cell walls, aiding in proper contraction/relaxation of muscles, cellular detoxification, and health maintenance w/ 84 trace elements.
- **Molybdenum** - Regulates pH, boosts metabolism - helps burn fat, promotes general well being, aids in carbohydrate metabolism, sleep aid.
- **Platinum** -Vital for cellular longevity and vitality, energize the human cell, stimulate brain cells to aid sleep patterns.May help support the immune system.
- **Potassium** - Neutralizes acids, restores alkaline salts in bloodstream, assists in metabolic processes, critical to cardiovascular and nerve function, assists in muscle energy, regulates water balance, vital in elimination of wastes.
- **Selenium** - Promotes normal body growth, supports fertility, encourages tissue elasticity, potent antioxidant, reduces the retention of toxic metals in the body, and crucial for the proper functioning of heart muscle.
- **Silver** - Potent natural antibiotic.
- **Sulfur** - Aids in elimination of toxins, supports blood circulation, scavenges free radicals, beautifies the skin, flexible bond connects cells, the lubricant found between joints, and may support myelin sheath for nerve protection.
- **Vanadium** - Supports circulatory system, helps maintain cholesterol and blood sugar levels.
- **Zinc** - Aids assimilation of vitamins, normal growth and development, maintenance of body tissues, sexual function, immune system, and synthesis of DNA. Is an Anti-Oxidant.

Information From Mother Earth Minerals

Health Maintenance MINERAL PROTOCOL

By A. True Ott, PhD

In my book, [Wellness Secrets for Life](#), I have outlined disease specific protocols that have helped thousands of individuals in their battle for 'normalcy'. However, what protocol should the vast majority of 'healthy and happy' individuals adopt to help assure that a major, debilitating disease does not cloud their future?? I highly recommend that every person who wishes to maximize their joy in living by maintaining a healthy mind, body, and spirit consider the following regimen:

MACROMINERALS TO BE TAKEN DAILY:

Calcium:	2-4 Droppers
Magnesium:	2 Droppers
Potassium:	2 Droppers
Silver:	2-4 Droppers
Chromium:	2 Droppers
Vanadium:	1 Dropper
Cobalt:	2 Droppers
Indium:	1-2 Droppers
Ultimatium	3-4 DROPS

ESSENTIAL MICROMINERALS TAKEN EVERY 3RD DAY

Iron:	1 Dropper
Iodine:	1 Dropper
Manganese:	1 Dropper
Molybdenum:	1/2 Dropper
Mineral of Life:	2 Droppers
Selenium:	1 Dropper
Boron:	1 Dropper
Gold: (PM Preferable)	1 Dropper
Platinum (AM Preferable)	1 Dropper
Zinc:	2 Droppers

MICROMINERALS TAKEN ONCE A WEEK

Copper:	
(Do not take w/ zinc or molybdenum)	1 Dropper
Sulfur:	2 Droppers
Germanium:	1 Dropper
Tin:	1-2 Droppers

CONVERSION RATIOS MOTHER EARTH MINERALS

by A. True Ott, PhD

There have been numerous questions by Health Care Professionals as to the relativity of Mother Earth Mineral angstrom sized mineral solutions to the daily RDA of minerals as established by the American FDA.

First of all, it needs to be established that a mineral element that is bound with another element such as carbon turns it into a compound and therefore is significantly different, chemically and physically speaking, than the pure, isolated mineral element itself. For instance, a 50 mg. pill of calcium carbonate is much different than the pure metallic element of calcium. Calcium Carbonate is NOT pure calcium in exactly the same way that water (H₂O) is a liquid compound much different than both of the primary GASSES Hydrogen (H) and Oxygen (O) that make up the compound. Moreover, Hydrogen and Oxygen are flammable gasses, while H₂O extinguishes fire. Calcium (Ca) is a metallic element, but when it combines with a carbon structure, it changes entirely into a compound better known as Chalk (Calcium Carbonate). Also, the amount of pure calcium received on the cellular level from the consumption of a calcium compound such as Lime or Chalk is dependent on a number of variables, including the individual's digestive enzymatic structure. Therefore, it is quite possible that individuals that are highly calcium deficient are unable to have the enzymatic functions to absorb calcium from the foods they consume, and likewise a typical calcium supplement has little or no effect for the same reason. It must be understood that sublingual application of Mother Earth Mineral solution bypasses the gastro-intestinal tract, and the pure element itself is 100% absorbed into the bloodstream. Understanding the conversion ratios then becomes less of a critical need - the more important number is the amount of MILLIGRAMS ABSORBED, vs. MILLIGRAMS CONSUMED.

With this stated, the following conversion ratios can be established, based on stated Parts Per Million (PPM) on the Mother Earth Minerals Labels for our friends in the FDA and AMA:

1 Dropperful of MEM = 1 Milliliter (ML or 1/1000 of a liter)

1 PPM = 1 Milligram (MG) per Liter

Therefore, the Conversion Ratio into Milligrams Per Dropper (MgPD) can be extrapolated by the following formula: $MgPD = PPM / 1000$.

For Instance, to calculate the Milligrams of Calcium per Dropper (ML), divide 2500 PPM by 1000 and you get 2.5 MG per dropper, or 2500 MCG per dropper. (MCG = MG X 1000) and this is 100% absorbed..

While ostensibly this may seem like a small amount compared with a traditional 50 or 100 mg. calcium carbonate supplement - consider that it is estimated that less than 1/100 of the actual mineral of calcium extrapolated from a compound form is absorbed on the cellular level IF THE INDIVIDUAL'S ENZYMATIC TRACT IS NOT IMPAIRED!! Therefore, the most a healthy individual could absorb on the cellular level from a 50 mg. calcium carbonate/citrate pill is typically .5 mg. The same ratios hold true on every mineral from Boron to Zinc.

Using this formula, we produced this table for ease of conversion:

5 dropperfuls = 5 ml = 1 Teaspoon
3 Teaspoons = 15 ml = 1 Tablespoon
2 Tablespoons = 1 oz.

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Angstrom Minerals

Our minerals are: Cell Ready, Ionic Minerals, and Water-Soluble Minerals

Cell Ready = assimilated into the human cell, not just the blood stream

Ionic = possesses an electrical charge

Water Soluble = angstrom sized minerals in an aqueous solution

In Minerals, Size Matters!

There are currently three ways to take minerals.

Worst

1. Mineral Tablets

Tablets were the first minerals that people used. You get some of the mineral and smash it into a size you can swallow. This helped keep the mineral in a handy little glob. However, since minerals are found in the earth naturally, they usually come from rock. This smashing together is just like mother nature. It makes little Rocks!. Your body was not set up to digest rocks. So while you may digest the top layer and get some of the mineral that you are seeking, the majority of this mineral goes unused. You may even see it in the toilet.

Better

2. Encapsulated Mineral Powders(capsules)

When people realized that more surface area exposed meant more mineral digested, they began to make mineral powders. These powders were messy and hard to ingest. Capsulation was born. A capsule made of gelatin holds the mineral powder until it gets to the stomach and then dissolves. Capsules are better than tablets!, but still have some limitations.

In order to run these minerals through encapsulation machines, flow agents had to be added. While not all flow agents are bad, you might be paying for capsule weight that is not completely the mineral you want. Most capsules are rated by weight of the mineral content and not total weight. Be sure to read the fine print on actually how much mineral is in each capsule compared to the over all capsule size.

Other limitations of the capsule include the use of complex minerals that are bound to other substances like calcium carbonate. You want calcium capsules for calcium, not carbon. But did you know that you are getting 3 carbons for every calcium with calcium carbonate? The Chemistry Symbol is CaCO_3 . It means three carbons for every calcium. Check your high school chemistry class, you will see the truth.

Best

3.Liquid

Minerals

Liquid Minerals are by far the best. They have been dissolved in a liquid, usually water and are in much smaller forms than powdered minerals. Yet there are limitations to liquid minerals. Some people defeat the purpose of vitamins and minerals by adding chocolate flavor or other flavors. By adding all of the pretty colors and dyes and sugar to vitamin and mineral supplements, you are defeating the purpose. The body has to use those minerals to rid itself of all of the pollutants you just added. Be sure to drink pure water and take minerals in their purest form *with out* additives.

Now that you are in the right classification of minerals, Liquid Minerals, you still must choose the smallest form of mineral. There are mineral powders that have been added to a liquid. They are about the same as capsules. It is time to analyze the mineral itself. How Small is it?

Angstrom Minerals are the smallest form of liquid minerals today.

Why does size matter? Because the smaller the mineral, the less energy it takes to digest or absorb it. In short

More Mineral for your Money !

Angstrom Minerals

Why is copper so special?

"It has to do with the fact that copper is schizophrenic," said Schmidt, who with the help of the copper industry obtained a Department of Defense grant in 2007 to study the germ-fighting efficacy of the metal.

The metal is highly conductive and electrons are constantly moving back and forth, he said, and that "schizophrenic" behavior creates the anti-microbial action.

Using a bit of science speak, Schmidt explained that the copper dents the crown-shaped virus and then slowly releases ions that interact with oxygen and generate free radicals, or uncharged molecules that typically are highly reactive. Those free radicals create a figurative grenade that goes off and destroys the virus' RNA.

Could the coronavirus change opinions about copper?

The Copper Development Association, a trade group representing the industry, believes that is already happening.

Copper is already recognized for its germ-fighting qualities, and is used in high-traffic facilities, including hospitals, gyms, schools and mass transit hubs, according to the association. From Article by, **Peter Krouse, cleveland.com**

Hospital administrators should take a new look at copper, new research suggests, with evidence emerging that the metal can halt the spread of a wide array of diseases.

Long before Pasteur invented the germ theory of disease, copper, and alloys such as brass, were touted as protectors against ill health. While many such pre-scientific remedies have failed rigorous testing, copper has been demonstrated to be a powerful antibiotic.

Dr Sarah Warnes of the University of Southampton has taken this a step further, revealing in mBio that copper can prevent the transmission of lethal respiratory viruses.

Despite the pervasive myth that antibiotics fight viral diseases like flu, effectiveness against bacteria normally provides no indication of anti-viral properties. However, Warnes reports that copper kills coronaviruses, a category that includes severe acute respiratory syndrome (SARS) and Middle East respiratory syndrome (MERS).

These diseases are often resistant to human-to-human transmission, but can be very long-lived when shed by animal hosts, allowing them to be picked up by humans touching surfaces on which they have survived. "Pathogenic human coronavirus 229E remained infectious in a human lung cell culture model following at least five days of persistence on a range of common nonbiocidal surface materials, including polytetrafluoroethylene (Teflon; PTFE), polyvinyl chloride (PVC), ceramic tiles, glass, silicone rubber, and stainless steel," the paper reports.

However, when Warnes and her co-authors used copper alloy surfaces, they found the viruses were quickly inactivated so they were no longer effective. Even a low concentration of copper proved "very effective," in the authors' words, when mixed with zinc to make brass.

"Exposure to copper destroyed the viral genomes and irreversibly affected virus morphology, including disintegration of envelope and dispersal of surface spikes," the paper reports.

The paper explores the reasons for the effect, which it attributes to a combination of copper itself and reactive molecules containing oxygen that are generated on the alloy surface.

Coronavirus 229E is one of the major causes of the common cold, and seldom fatal. However, it is part of the same family as SARS and MERS, which have killed over 1,000 people between them. While researchers naturally prefer to work with a virus that causes colds than its more deadly relatives, they hope their discovery may prove more widely applicable.

A previous paper by two of the same authors showed that copper also kills the MNV-1 virus, part of the norovirus family responsible for roughly half of gastroenteritis cases. However, alloys containing over 60 percent copper were required in that case, higher than for coronavirus 229E. Where sewage and plumbing is well developed gastroenteritis is generally associated with a day or two hunched over a toilet and some unintended weight loss, but worldwide it kills millions of people a year. Since noroviruses and coronaviruses are not closely related, copper's effectiveness against both suggests its applications may be widespread.

The authors recommend using copper alloy surfaces in places where diseases are likely to spread, such as the communal areas of hospital respiratory disease wards.

Taken from, <https://www.iflscience.com/health-and-medicine/copper-destroys-respiratory-viruses/>

Copper and its alloys (brasses, bronzes, cupronickel, copper-nickel-zinc, and others) are natural antimicrobial materials. Ancient civilizations exploited the antimicrobial properties of copper long before the concept of microbes became understood in the nineteenth century.^{[1][2][3]} In addition to several copper medicinal preparations, it was also observed centuries ago that water contained in copper vessels or transported in copper conveyance systems was of better quality (i.e., no or little visible slime or biofouling formation) than water contained or transported in other materials.^[citation needed]

The antimicrobial properties of copper are still under active investigation. Molecular mechanisms responsible for the antibacterial action of copper have been a subject of intensive research. Scientists are also actively demonstrating the intrinsic efficacy of copper alloy "touch surfaces" to destroy a wide range of microorganisms that threaten public health.

From Wikipedia

Does copper kill germs? Yes, it's effective against COVID-19 within 4 hours

ASHLEY LADERER MAR 26, 2020, 7:53 AM

Copper kills most germs within hours, and renders others non-infectious.

- Copper can kill viruses and other germs by disrupting the protective layers of the organisms and interfering with its vital processes.
- A new study found that SARS-CoV-2, the virus responsible for the coronavirus pandemic, is no longer infectious on copper within 4 hours, whereas it can survive on plastic surfaces for 72 hours.
- Copper has many applications in hospitals and other places where germs are likely to spread.
- **This article was medically reviewed by Tania Elliott, MD, who specialises in infectious diseases related to allergies and immunology for internal medicine at NYU Langone Health.**

While you may think that antiseptic wipes or sprays are necessary to kill germs, there's actually a metal that kills germs on contact – no cleaning supplies necessary.

Believe it or not, the use of copper for health purposes dates all the way back to Ancient Egypt, and scientists today are still learning about the amazing benefits of copper. Here's what you need to know.

Copper does kill germs

Copper has antimicrobial properties, meaning it can kill microorganisms like bacteria and viruses. However, the microorganism has to come in contact with the copper in order for it to be killed. This is referred to as “contact killing.”

According to Edward Bilsky, Ph.D., Provost and Chief Academic Officer at Pacific Northwest University of Health Sciences, copper can kill germs in a few ways:

- It disrupts bacterial cell membranes – copper ions damage cell membranes or “envelopes” and can destroy the DNA or RNA of the microbe
- It generates oxidative stress on bacterial cells and creates hydrogen peroxide that can kill the cell
- It interferes with proteins that operate important functions that keep bacterial cells alive

The exact mechanism of how copper interferes with proteins in bacterial cells is not fully understood yet, but the current hypothesis is mis-metalation, thanks to the fact that copper is a stable metal.

“Mis-metalation is the ability of a metal to basically replace another metal,” says Michael D. L. Johnson, Ph.D., Assistant Professor of Immunobiology at the University of Arizona College of Medicine in Tucson. “Copper can just replace some of the other metals that are present in some of these other proteins [in bacteria] and by doing so, it blocks the function of those proteins.” When you block a protein’s function, it starts a bacteria-killing chain reaction. “By blocking the function of the protein, you block the function of the pathway. When you block the function of the pathway, you block the function of the organism, and then the organism is just dead in the water,” says Johnson.

Copper Can Kill Viruses and Bacteria

Studies have shown that copper can kill many types of germs on contact. According to a 2015 study published in Health Environments Research and Design Journal, some of the common germs copper has been proven to kill are:

- MRSA
- E. coli
- Influenza A
- Norovirus

Brand new research published in the New England Journal of Medicine found that copper can be effective against SARS-CoV-2, the virus responsible for the coronavirus pandemic. The study showed that after four hours, the virus was no longer infectious on copper’s surface. In comparison, coronavirus was still infectious on plastic surfaces after 72 hours.

The applications of antimicrobial copper

One of the main applications of copper is in hospitals, although the use is not widespread. In the same study as above, researchers determined the germiest surfaces in a hospital room – bed rails, call buttons, chair arms, tray table, data input, and IV pole – and replaced them with copper components.

The results were very promising. Compared to the rooms made with traditional materials, there was an 83% reduction in bacterial load on the surfaces in the rooms with copper components. Additionally, infection rates of patients were reduced by 58%.

Technically, you can use copper at home. However, according to Johnson, the majority of copper products for the home have a treatment on it to prevent the oxidation that causes the beautiful original colour of the copper to turn to a greenish-blue over time. This treatment prevents you from getting the beneficial antimicrobial properties of copper. That being said, copper still has the ability to be toxic to bacteria when it's at this oxidized greenish state, however, according to Johnson, scientists still don't know exactly how this mechanism works.

According to current research, the downside of using copper is that it isn't as effective at destroying viruses as it is at killing bacteria – particularly if it's an airborne virus. Much of this has to do with the fact that viruses are technically not living organisms – they are infection agents, which are not “alive” like cells are, and as such they are more durable.

“Viruses are different in that they are not cells but rather infect healthy cells that allows them to replicate. The virus can come in direct contact with the upper respiratory tract and eyes and enter healthy cells, so a copper strategy would be largely ineffective [in that case],” says Bilsky.

Another downside is that there are some unsubstantiated claims that may mislead people. Some companies try to market copper jewellery or copper-infused socks as antimicrobial protection for the wearer, but these are ineffective.

Hopefully, more research will continue to be conducted so we can better understand the antimicrobial properties of copper and the most effective ways to use it in everyday life to keep us healthy.

How Copper Kills the Flu, Colds and Coronavirus (COVID-19)

Did you know that copper kills germs and bacteria and can therefore help you avoid the flu, colds and other viruses, including the coronavirus (COVID-19)? In this post, we explain the science behind the incredible antimicrobial and antibacterial qualities of copper. We also explain how you can use a [copper water bottle](#) to support your health. Let's get started!

What you Need to Know about the Flu

If you have ever experienced the flu, you know how incredibly awful it feels. You feel chills, aches, and pains all over your body. You become confined to your bed and are unable to move much because your body needs to rest as it recuperates. Although most of us have found ourselves stuck with the flu, what exactly is the flu, what does it do to our bodies, and how can a [copper water bottle](#) help fight off the flu?

The flu has been around for thousands of years and has caused sickness and death to multitudes of people. The flu is caused by the influenza virus, which is speculated to have originated when animal domestication and permanent settlement first began.

A significant outbreak of the flu was recorded as early as the 15th century. It is reported that this outbreak started in Rome and spread to other areas in Europe as well as Africa. The pandemic is reported to have caused the deaths of approximately 8,000 people and severely affected several cities in Spain.

Perhaps the greatest pandemic of influenza happened in the years 1918-1919. This pandemic was known as the “Spanish influenza” and killed an estimated 50 million people. This occurrence was considered the most lethal outbreak of the influenza virus. In a study by [Taubenberger and Morens](#), they note that all modern influenza pandemics can be traced back to the Spanish influenza.

What Happens During an Influenza Invasion

Once the influenza virus enters the body, it travels to the lungs where it attaches itself to a host cell's surface. The virus then opens and sets loose its genetic information in the nucleus of the cell. The virus creates copies of itself using the cell's nucleus and overtakes its function. The replicas of the virus then travel to the cell's membranes and kill it. The death of the cell permits the virus to release itself into the body so that it can infect other cells.

The immune system then sets out to fight the foreign invader. Some of the cells that engage in this battle include macrophages, neutrophils, cytokines, chemokines, and T lymphocytes.

In a study by van de Sandt et al., researchers learned how the influenza virus can avoid the immune system's offensive response. In particular, the "antigenic drift" of the influenza virus permits it to escape the antibodies' neutralizing activity as induced by previous infections or vaccination. This is the reason why flu vaccines do not provide a lifetime of protection and must be updated every year.

Fortunately, as described in more detail below, you can use a copper bottle to help fight off the viruses that cause colds, the flu, and other illnesses.

Symptoms of Flu

The unpleasant feeling you experience when you have the flu is a side-effect of your immune system's efforts at fighting the virus. According to the US Center for Disease Control and Prevention, some of the symptoms you will experience when you have the flu include:

- Fever or feeling feverish/chills
- Cough
- Sore throat
- Runny or stuffy nose
- Muscle or body aches
- Headaches
- Fatigue (tiredness)
- Vomiting and diarrhea (occurs more commonly in children than adults.)

One of the main reasons why headaches occur during the flu is because Interleukin-1, an inflammatory type of cytokine, is activated while the body is fighting off the virus. This cytokine is vital to the development of T cells, which help kill the virus. As this process unfolds, the brain is affected, particularly the hypothalamus, which regulates the body's temperature. Meanwhile, muscle aches are caused by the increase of muscle-degrading genes and the reduction of muscle-generating genes.

Severe Flu

Although the immune system works hard to eradicate the influenza virus, all that work leaves the immune system weakened and vulnerable. This makes a person more susceptible to other severe infections. These complications may include bacterial pneumonia, bronchitis, dehydration, sinus issues, and ear infection. Worsening of pre-existing conditions may also occur, which conditions include diabetes, chronic congestive heart failure, or asthma.

Certain people are at a higher risk for severe flu. Among them are people 65 years old and older, children, pregnant women, and people with chronic medical conditions.

The Transmission of Flu

The flu is highly contagious, and a person with the virus can infect others even before the symptoms start manifesting themselves within the host. This means that you can pass on the virus even before you know you have it.

When a person with the flu coughs or sneezes, thousands of droplets containing the viruses spread in the air and can land in the nose and mouth of another person. You can also get infected with the influenza virus when you touch an object with the virus on it and then touch your nose or mouth.

In a study by Lowen et al., researchers determined that influenza virus transmission is dependent on relative humidity and temperature. The researchers performed 20 experiments that involved varying humidity and used guinea pigs as hosts. They discovered that the influenza virus transmission favored cold and dry conditions.

Flu Season

The most common season for the flu falls in autumn and winter. However, the flu can still spread year-round. It can start around October, have peak periods around December and February, and then persist in late May.

Multiple hypotheses seek to explain why the flu season happens around these times of the year. One theory is that people tend to stay indoors more often during colder months, with the result that the virus is more likely to spread in enclosed spaces where more people are breathing the same air.

Another theory is that reduced exposure to the sun, which results in decreased absorption of Vitamin D and melatonin, weakens the immune system, making it more susceptible to the influenza virus. Another theory is that the influenza virus thrives in the cold and dry air of winter rather than the warm and humid air of summer.

What You Need to Know About Colds

Although the flu and the common cold are caused by different viruses, they are both respiratory illnesses and have similar symptoms. As a result, it is often challenging to distinguish between a flu and a cold based only on observing symptoms. The flu is usually much more intense than colds, and people with colds are more likely to suffer from runny or stuffy noses. Colds are less likely to result in serious health complications such as pneumonia.

Like the flu, colds are more common during the "cold season", which are considered to be the winter months from September to April in the United States. As with the flu, the viruses that cause colds are believed to spread more easily during the winter, when there is a drop in temperature and humidity.

More than 200 types of viruses are known to cause colds, but the most common one is called the rhinovirus, which is thought to be responsible for at least 50% of common colds.

As with the flu, you can, as described below, use a copper water bottle to help fight off the viruses that cause the common cold.

What You Need to Know About the Coronavirus (COVID-19)

The Coronavirus is known to cause an illness that has flu-like symptoms, such as aches, fever, and cough. In addition, both COVID-19 and the flu can be mild, severe, or, in rare cases, fatal. Both can also lead to pneumonia. As a result, the Coronavirus is much more severe than the cold and potentially much worse than the flu, depending on the person who becomes infected by it.

Although science has not yet identified a vaccine for the Coronavirus, studies confirm that copper can be used to kill the virus on contact.

How Copper Can Help

Copper has been used for centuries for its antimicrobial properties. Some studies have considered the effects of copper against the influenza virus. One such study, conducted by Horie et al., discovered that copper ions had the effect of inactivating the influenza virus.

Another study by Borkow et al. researched how copper-infused face masks affected the influenza virus. Face masks permeated with copper oxide were able to filter more than 99.85% of air-borne viruses. Researches also discovered that no infectious human influenza viruses were recovered from the face masks with the copper oxide, compared to the control masks that did not contain copper ions.

In addition, Grass et al. carried out a study focused on copper's ability to kill microbes. In particular, the researchers explored copper's effectiveness at "contact killing", which is when bacteria, viruses, and yeast are quickly killed when they come into contact with copper surfaces.

One principle that is attributed to copper's antimicrobial capability is known as the "oligodynamic effect". Research by Varkey outlined the mechanism of this phenomenon, which essentially comes about by way of copper ions penetrating the cell wall of microbes. Copper ions bind to various parts of the cell, such as the DNA, RNA, cellular proteins and respiratory enzymes, which has the effect of immobilizing the cell.

Another interesting study, this one conducted by Noyce et al., explored the effects of copper on the inactivation of the influenza virus compared to stainless steel. In their experiment, the researchers introduced two million influenza virus particles onto sheets of copper and stainless steel. They then incubated the subjects. The results showed that, after several hours, 500,000 virus particles were present on the stainless steel whereas only 500 active virus particles were present on the copper.

In the same way, copper has also been shown to kill the Coronavirus on contact. It is for is for this reason that many health industry experts are now recommending that hospitals and other care facilities be constructed with copper surfaces to minimize the spread of viruses and bacteria between patients in future health crises.

You can enjoy the antimicrobial benefits of copper by using a copper bottle. Combined with a nutritious diet and other healthy practices, drinking from a copper bottle can be a great way to stay free of the flu, cold and other illnesses. In addition, unlike other water bottles, a copper water bottle will not become a potential source of viruses because any germs or bacteria that land on the bottle will be destroyed on impact. In the same way, holding the copper water bottle in your hands can help kill germs and bacteria that are present on your hands. In addition, storing water in a copper bottle is a great way to create natural alkaline water.

You can order a very high quality copper water bottle here.

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